Missouri EPIDEMIOLOGIST

Volume 7, Number 8 July-August 1985

INSIDE THIS ISSUE:

HEAT-RELATED ILLNESS AND DEATH

Surveillance of heat-related illness by the Missouri Department of Health confirms this to be a potentially severe but variable problem in the state. The largest number of cases in recent years occurred in 1980 with 784 cases reported during the summer from St. Louis and Kansas City. This heat wave was intensively studied and reported in the May 1981 issue of the Missouri Epidemiologist. Two hundred and ninety-five deaths from excessive heat occurred in 1980 according to review of official death certificates, including 204 from St. Louis and Kansas City and 91 from outstate areas.

During the summer of 1981, there were 199 cases of heat-related illness including three fatalities. All District Health Units reported some cases of heat-related illness in July of that year, with a total of 182 for the month including three fatalities. In August, there were reports of 14 persons treated as outpatients and three hospitalizations. Thirteen deaths were certified as caused by heat with six from Kansas City and seven from the outstate area.

Only three reports were received in the summer of 1982 on heat-related illness--all receiving outpatient treatment in St. Louis. However, there were two deaths in Kansas City and three in outstate Missouri for a total of five deaths in 1982.

Surveillance of heat injury in the summer of 1983 led to reports of 12 deaths confirmed and 10 deaths suspected to be heat-related. There were 128 patients hospitalized and 265 treated as outpatients. Seventy-one deaths were reported, 39 in St. Louis, six in Kansas City and 26 in outstate Missouri.

Summer of 1984

During the summer of 1984, reports were received concerning 93 cases of heat-related injury including 16 who were hospitalized and released and one teenage male who died after unsuccessful hospital treatment for acute heat stroke. Seventeen cases occurred in June, 35 in July, 36 in August and five in September. The vast majority of these cases (89) were reported from St. Louis, three from District 4 and one from District 5.

(Continued on page 2)

The heat index (ATI) was monitored during July and August. This index met or exceeded the threshold of 105° on seven occasions persisting for a three-day period on three occasions--July 8-10 in Kansas City, August 5-7 in Kansas City, and August 27-29 in Columbia and Kansas City. Three deaths were reported on death certificates in 1984, two in St. Louis and one in Kansas City.

Prevention of Heat-Related Illness

The Missouri Department of Health monitors the apparent temperature (also called heat index) with the help of the National Weather Service. Through the assistance of local health agencies and district health offices, reports of heat-related illness are monitored. With public health education and news bulletins concerning the possibility of heat-related illness, risk factors and prevention recommendations, the agency increases the public consciousness regarding this environmental stress.

There are numerous environmental and personal risk factors involved in heat-related illness. The heat index reflects the joint impact of temperature and humidity on the person. The index is calculated for only a few locations across the state. Specific local factors, both outside of buildings and within, modify the impact for any given person. Cloud cover, shade trees, wind, asphalt and concrete, insulation, air conditioning, ventilation, and use of fans affect the heat stress for an individual. Diurnal fluctuation of temperature, including especially the extent of nighttime cooling, modifies the heat stress. The duration of exposure, including hours per day and number of successive days of exposure, also modifies the stress.

Personal factors of age and general health, intake of foods and beverages, medications, clothing, exercise, and acclimatization affect the individual's probability of suffering from heat-related illness. Phenothiazine-like drugs, anticholinergics, and excessive alcoholic intake have been noted to increase the likelihood of such illness. Patients who are mentally or chronically ill, those who are acutely ill with febrile illness or diarrhea, and those who are confined to bed or otherwise unable to take care of themselves are more susceptible to heat-related illness. Physicians and other health care workers should exercise special care during hot weather to prevent their patients from acquiring heat-related illness in addition to their underlying medical condition.

ENVIRONMENTAL RADIATION MONITORING LEGISLATION

A bill recently enacted by the Missouri General Assembly and signed by Governor Ashcroft significantly expands the state's potential to address environmental radiation problems and concerns. Implementation of the bill will require the cooperative efforts of two departments, Natural Resources and Health. Environmental monitoring activities have been severely limited in the past by inadequate funding and lack of specific authorization. Those activities will now be funded from an "Environmental Radiation Monitoring Fund" established for that purpose and are assigned to the Department of Natural Resources. Radiological laboratory capabilities to support environmental monitoring programs and to provide other analytical services which may be required will be developed within the State Health Laboratory. This represents an entirely new service, at the state level, in Missouri.

INFLUENZA IMMUNIZATION, 1985

Public influenza immunization activities were expanded in 1984 in an effort to serve more of the elderly and chronically ill who are at high risk of complications and death from influenza infection. Many of these people have gone without protection in previous years; it has been estimated that only 20 percent of the target population receives influenza vaccine from all sources each year. The vaccine is highly effective in preventing morbidity and mortality, especially in nursing homes and other chronic care facilities. Approximately ten percent of Missouri's high risk population received public vaccine during 1984-85 through health department clinics, nursing homes, other public clinic sites such as community centers, and private physicians. A total of 82,250 people were served.

A larger supply of vaccine will be available in the fall of 1985, to be distributed through district and local health departments. Vaccine composition will be the same as last season since the prevalent influenza strains have not changed significantly. Strains included in the vaccine will be: A/Philippines/2/82(H3N2), A/Chile/1/83(H1N1), and B/USSR/100/83. Immunity declines in the year following vaccination, so those who were immunized in 1984-85 will need to be revaccinated this year to provide optimal protection.

Population groups targeted to receive influenza vaccine include those at highest risk of complications from the disease, plus those who might act as vectors for transmission to high-risk persons. The following target groups have been designated by the U.S. Public Health Service Immunization Practices Advisory Committee (ACIP) in order of priority:

1. Adults and children with chronic disorders of the cardiovascular or pulmonary systems that require regular medical followup.
2. Residents of nursing homes and other chronic care facilities which care for patients of any age with chronic medical conditions.
3. Physicians, nurses and other personnel who have extensive contact with high-risk patients.
4. Otherwise healthy individuals over 65 years of age.
5. Adults and children with chronic metabolic diseases, renal dysfunction, anemia, immunosuppression or asthma that require regular medical follow-up.

The Missouri Division of Health is interested in reaching as many high-risk individuals as possible with flu vaccine, especially nursing home residents. Recent data indicate that the vaccine is most effective in preventing outbreaks, complications, and mortality when at least 80 percent of the nursing home population is protected. Other high-risk persons should be vaccinated at the time of regular medical follow-up visits; if not scheduled for routine visits in the fall, they should be notified to come in specifically for immunization.

For the first time, the ACIP has recommended a specific injection site for influenza vaccine. For optimal immunogenicity and to minimize reactions, the preferred route of vaccination is the deltoid muscle whenever possible.

For further information, please contact your local health department or the Missouri Division of Health, Bureau of Immunization, P.O. Box 570, Jefferson City, MO 65102-0570.

TRAVELER'S DIARRHEA

Eight million Americans will travel to developing countries this year. One out of three travelers will have to cope with diarrhea: typically two to five loose stools a day, possibly accompanied by nausea, cramps, and fever. Escherichia coli, a common species of enteric bacteria, is the leading pathogen, although a host of other bacteria, viruses, and protozoa have been implicated in some cases. Travel to developing countries in Africa, Latin America, the Middle East, Mediterranean countries, and Southeast Asia is associated with a high risk for acquiring traveler's diarrhea.

Prudent dietary and hygienic practices will prevent some, but not all, diarrhea, since it is mainly acquired from contaminated food and water. Bismuth subsalicylate (Pepto-Bismol) and several antibiotics have been popular in recent years as preventives. Such widespread usage in millions of travelers would cause many side effects, including severe ones, while preventing a disease that has had no reported mortality. Most physicians, including a panel of experts convened in 1985 by the National Institutes of Health, advise against using medications prior to the onset of diarrhea. (Their use may be valid in special instances where travelers cannot afford to be sick, such as business meetings or athletic events.) Rapid institution of effective treatment can shorten the disease to 30 hours or less in most people and this approach is the best current recommendation.

The most serious consequence of diarrhea is fluid loss. The best way to maintain fluid and electrolyte balance during mild diarrhea is to drink plenty of clear liquids such as tea, fruit juices, caffeine-free soft drinks, and purified water along with salted crackers. Avoid alcohol and caffeine-containing beverages. Dairy products aggravate diarrhea in some people and should be avoided. In more severe cases (five or more stools a day) the following formula is recommended by the U.S. Public Health Service: Prepare two glasses of liquids -- in the first glass mix eight ounces of fruit juice with 1/2 teaspoon of honey or sugar and a pinch of salt; in the second glass mix eight ounces of carbonated or purified water with 1/2 teaspoon of baking soda. Drink alternatively from each glass until thirst is quenched.

An antimotility drug such as diphenoxylate (Lomotil) or loperamide (Imodium) can be taken for rapid relief of symptoms after one or two unformed stools accompanied by cramps, nausea or malaise. They should not be used in patients with high fever or bloody stools, or in children under the age of two. They should be discontinued if symptoms persist beyond 48 hours. Bismuth subsalicylate, which works somewhat slower, can also be used. It can be used in a dose of two ounces four times a day or one ounce every 30 minutes for eight doses.

Travelers who develop diarrhea with three or more loose stools in an eight-hour period--especially if associated with nausea, vomiting, abdominal cramps, fever or blood in the stools--may benefit from anti-microbial treatment. One of the following antibiotics,--trimetho-prim/sulfamethoxazole, 200 mg of trimethoprim alone, or 100 mg of doxycycline--taken twice daily is recommended for three days of treatment, although two days or fewer may be sufficient. Prior to departure prescription drugs may be obtained from a physician to be taken in the event of severe diarrhea.

(Continued)

Diarrhea is rarely life-threating in individuals whose nutritional status is good. If severe diarrhea is accompanied by blood in the stool and fever, it may indicate dysentery -- a far more serious bacterial infection that requires immediate medical attention.

This material was prepared from a document entitled "Traveler's Diarrhea, National Institutes of Health Consensus Development Conference Statement", Volume 5, Number 8.

AIDS UPDATE

As of June 30, 1985, the Missouri Division of Health has confirmed 56 cases of Acquired Immune Deficiency Syndrome (AIDS) since the first case was reported in 1982. From this total, 27 deaths have occurred.

In addition to the cases reported, nine suspected cases were pending diagnosis on July 16, 1985.

A summary of illness and patient characteristics and risk factors for all cases reported in the state from 1982 to date:

Illness Characteristics

1 - Both KS* and PCP* (Without Other OI*)
3 - Both KS and PCP (With Other OI)
7 - KS Alone
14 - PCP Alone
3 - KS Without PCP (but with Other OI)
18 - PCP Without KS (but with Other OI)
10 - OI Without KS or PCP

Risk Factors**

5 - Cases with IV Drug Abuse
3 - Cases with Underlying Hemophilia
48 - Cases with Gay Exposure
1 - Case Received Blood Transfusion
2 - Cases with Unknown or No Apparent Risk Factors

Patient Characteristics

48 - White (1 of Hispanic origin; 1 of probable Hispanic origin)
8 - Black
55 - Male
1 - Female Average Age = 38.9

*KS--Kaposi's sarcoma
*PCP--Pneumocystis carinii pneumonia
*OI--Opportunistic Infection

**3 cases with double risk factor

The Missouri Division of Health is sponsoring the operation of 11 screening sites for HTLV-III virus antibody testing through county and city health departments. The sites, which began testing on June 3, 1985, provide alternate locations where high-risk individuals may be tested to encourage them not to offer to donate blood simply to be tested.

By July 5, 1985, forty-four individuals had been tested and ten were positive. The Missouri Division of Health anticipates that the screening period for HTLV-III virus antibody testing will be extended from the scheduled ending date of July 24 to October 27, 1985.

CHLORDANE IN MISSOURI

Recently there has been considerable publicity about fish from Missouri waters being contaminated with the insecticide chlordane. The Missouri Division of Health has recommended that all types of fish from the lower Meramec and carp from Creve Coeur Lake not be eaten because of high levels of chlordane in the tissue. Exposure may also occur in residences when chlordane is incorrectly applied. Both types of exposure are a matter of concern to several state agencies and the U.S Environmental Protection Agency (EPA).

Chlordane is one of the last of chlorinated hydrocarbon insecticides still used in the United States. Until 1977 it was used extensively in agriculture, but since then its use has been restricted to injection into the ground to treat for termites. However, it is available both to licensed pest control operators and to private citizens for this use. Chlordane can persist in the soil for 30 or more years. It does not bioaccumulate in the food chain like DDT, another chlorinated hydrocarbon, but does accumulate in fatty tissues. It is insoluble in water so poses little threat to groundwater, but can pollute rivers, streams and lakes through erosion of chlordane-contaminated soil particles into surface waters.

At air levels above 0.1 ppm, chlordane may affect the central nervous system resulting in ataxia, blurred vision, delirium and even death. Other reported acute effects include nausea, diarrhea and abdominal pain. Chlordane and the other chlorinated cyclodiene insecticides are more readily absorbed through intact skin than DDT and other closely related compounds. The effects of chronic long-term exposure in humans is not known and animal studies have been inconclusive, but some suggest liver, kidney and myocardial damage. Evidence indicates that chlordane can cause liver cancer in mice but not in rats. Epidemiological studies of pest control operators using chlordane have not revealed excesses of cancer. The EPA has classified chlordane as a suspected carcinogen and has established water quality criteria based on animal carcinogen studies. The Food and Drug Administration has similarily used animal data to set an action level for chlordane in fish fillets of 0.3 ppm.

The EPA and the Missouri Departments of Natural Resources and Conservation conduct continuing surveys for chlordane and other chemicals in fish throughout Missouri. Chlordane has been found in fish at a number of places but significant levels were found only in the lower 22 miles of the Meramec River and in Creve Coeur Lake. In the lower Meramec the chlordane levels in fish fillets from several species of fish varied from 0.6 ppm to 8.6 ppm, while in Creve Coeur Lake carp were the only fish with levels (0.9 ppm) that were a public health concern. A recent large scale study of fish in Lake of the Ozarks revealed no tissue levels above 0.2 ppm. Several other areas in Missouri will be the subject of indepth studies in the next year.

The chlordane levels in fish from the lower Meramec River and from Creve Coeur Lake stimulated the Missouri Division of Health to recommend that people not eat any fish from the lower Meramec or carp from Creve

(Continued)

Coeur Lake because there may be some risk of cancer due to chlordane in the fish. Using data extrapolated from animal experimentation, if each of the approximately 10,000 fisherman using the lower Meramec ate 20 pounds of fish contaminated at 8.6 ppm, it might be predicted that one person would get cancer due to chlordane. This estimate assumes that chlordane can cause cancer in humans. There is no convincing evidence that chlordane or any other chlorinated cyclodiene insecticide has contributed to an increased incidence of tumors in man, and the subject remains controversial and a matter of continued research.

The contamination of fish with chlordane may be coming from either or both of two sources: agricultural use prior to 1977 and treatment for termites. Termite treatment appears to be the major source in urban/suburban areas like Creve Coeur Lake and the lower Meramec. In these areas the problem appears to be growing, while insecticide levels in tissues of fish from agricultural areas have been going down. It is unclear whether contamination due to termite treatment comes from normal usage or misapplication.

Misapplication of chlordane can result in residential exposure to this insecticide. Exposure occurs when chlordane is spilled, sprayed on indoor surfaces, or injected into wood beams. Injection into the soil either directly or through the foundation is the only approved use of chlordane. Spills on hard surfaces can be easily cleaned up with soap and water, but contamination of porous surfaces such as wood or concrete is not easily removed.

When a physician suspects a patient's illness may be due to exposure to chlordane, he or she should contact the Bureau of Pesticide Control in the Department of Agriculture at 314/ 751-5504 immediately so the possibility of misuse can be investigated. The Bureau of Environmental Epidemiology, 314/ 751-8209 in the Division of Health can provide help in determining if an observed illness is due to chlordane. The Bureau recommends that serum from a patient be analyzed when chlordane intoxication is suspected. The staff can help arrange for the analysis to be done. Bureau staff can also sample residential air for chlordane where necessary. Contamination of the environment should be reported to the Water Pollution Program of the Department of Natural Resources at 314/ 751-3241.

Any questions or comments about chlordane can be directed to:

Missouri Division of Health
Bureau of Environmental Epidemiology
P.O. Box 570, 1730 East Elm
Jefferson City, MO 65102-0570
PHONE 314/ 751-8209

NEW VACCINE RECOMMENDATIONS

The Advisory Committee on Immunization Practices (ACIP) of the U.S. Public Health Service provides comprehensive recommendations for the use of vaccines. During 1985, updated recommendations for several vaccines have been published in the "Morbidity and Mortality Weekly Report" (MMWR). Single copies of the articles listed below are available upon request to the Bureau of Immunization, P.O. Box 570, Jefferson City, MO 65102-0570.

1. "Polysaccharide Vaccine for Prevention of Haemophilus influenzae Type b Disease," MMWR, April 19, 1985 (Vol. 34, No. 15, pp. 201-205).
2. "Meningococcal Vaccines," MMWR, May 10, 1985 (Vol. 34, No. 18, pp. 255-259).
3. "Prevention and Control of Influenza," MMWR, May 17, 1985 (Vol. 34, No. 19, pp. 261-268, 273-275).
4. "Recommendations for Protection Against Viral Hepatitis," MMWR, June 7, 1985 (Vol. 34, No. 22, pp. 313-324, 329-335).
5. "Smallpox Vaccine," MMWR, June 14, 1985 (Vol. 34, No. 23, pp. 341-342).
6. "Diphtheria, Tetanus, and Pertussis: Guidelines for Vaccine Prophylaxis and Other Preventive Measures," MMWR, July 12, 1985 (Vol. 34, No. 27, pp. 405-414, 419-426).

ACIP recommendations for the use of polio, measles, mumps and rubella vaccines are also available upon request.

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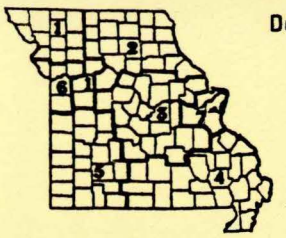


Department of Social Services – MISSOURI DIVISION OF HEALTH – Section of Epidemiology Services

BIMONTHLY MORBIDITY REPORT

Reporting Period May and June* , 1985

	DISTRICTS							Kansas City	St. Louis City	St. Louis County	2 Month State Totals		Cumulative		
	I	II	III	IV	V	** VI	** VII				1985	1984	for 1985	for 1984	5 Year Median
Vaccine Preventable Dis.															
Chickenpox	93	36	36	135	3	0	2	0	0	0	305	433	2004	1755	***
Diphtheria	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Influenza	0	0	0	0	0	0	0	0	1	0	1	3	60	40	
Measles	0	0	0	0	0	0	0	0	0	0	0	2	2	2	
Mumps	0	3	0	0	0	0	1	0	1	0	5	1	11	6	
Pertussis	0	0	4	0	1	0	0	0	0	0	5	2	13	14	
Polio	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Rubella	0	0	1	0	0	0	0	0	5	1	7	0	7	0	
Tetanus	1	0	0	1	0	0	0	0	0	0	2	1	2	1	
Viral Hepatitis															
A	0	0	1	4	8	0	0	3	3	1	20	15	64	70	
B	1	1	2	1	3	3	1	17	16	9	54	35	187	131	
Non A – Non B	0	1	0	2	2	0	0	1	1	0	7	9	19	22	
Unspecified	0	0	0	0	0	0	0	0	2	0	2	2	7	11	
Meningitis															
Aseptic	0	0	0	0	0	0	2	1	3	5	11	8	25	15	
H. influenza	1	2	4	2	0	3	0	2	2	1	17	15	52	57	
Meningococcal	0	0	1	4	3	1	2	1	2	0	14	8	32	26	
Other	1	0	2	0	1	0	0	1	1	0	6	10	30	27	
Enteric Infections															
Campylobacter	3	2	2	0	18	4	9	9	1	11	58	36	115	82	
Salmonella	6	0	10	11	10	3	8	17	25	4	94	82	232	238	
Shigella	0	0	0	0	2	4	0	18	1	3	28	30	53	102	
Typhoid Fever	0	0	0	0	0	1	0	0	0	0	1	1	1	1	
Parasitic Infections															
Amebiasis	1	0	0	0	0	0	0	0	1	0	2	5	16	15	
Giardiasis	9	3	19	6	0	20	2	7	0	2	68	28	165	125	
Toxoplasmosis	0	0	0	2	0	1	0	0	0	1	4	2	8	9	
Sexually Transmitted Dis.															
AIDS	2	0	0	1	0	0	0	5	1	1	10	7	21	14	
Gonorrhea	51	27	124	119	85	140	35	1149	1299	433	3462	3220	9471	9208	
Genital Herpes	11	4	7	3	2	9	9	79	85	56	265	74	663	226	
Nongonococcal urethritis	20	4	18	11	61	43	13	395	793	272	1630	1408	4308	3694	
Primary & secondary syphilis	1	0	0	1	2	2	1	8	7	1	23	25	54	114	
Tuberculosis															
Extrapulmonary	0	1	0	0	3	0	1	0	4	2	11	6	23	16	
Pulmonary	1	2	7	5	6	3	1	8	5	8	46	73	109	136	
Zoonotic															
Animal Bites	0	1	1	0	6	0	21	0	0	1	30	77	59	167	
Psittacosis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Rabies (Animal)	0	0	1	2	1	0	0	1	0	0	5	11	21	36	
Rocky Mtn. Spotted Fever	0	0	0	1	0	0	0	0	0	0	1	0	1	1	
Tularemia	0	1	7	1	1	0	0	0	0	0	10	6	15	9	

Low Frequency Diseases

Anthrax
Botulism
Brucellosis
Chancroid
Cholera
Cryptosporidiosis
Encephalitis (infectious)
Encephalitis (viral/arbo-viral)
Granuloma Inguinale
Kawasaki Disease
Legionnellosis – 5
Leptospirosis
Lymphogranuloma Venereum
Malaria – 1
Plague
Rabies (human)
Reye's Syndrome – 2
Toxic-Shock Syndrome – 1
Trichinosis

Outbreaks

Foodborne/waterborne
Histoplasmosis
Nosocomial
Pediculosis
Scabies
Other

*Reporting period beginning April 28, ending June 29

**Totals do not include K.C., SLC, or SLCo.

***Data not available for 5 year median this issue

Missouri EPIDEMIOLOGIST

Volume 7, Number 9 September-October 1985

INSIDE THIS ISSUE:

TUBERCULOSIS CONTROL IN NURSING HOMES

Recent statistics regarding reported cases of tuberculosis disclose a continued decrease of this disease in Missouri as well as in the entire United States. Of significant concern to public health authorities in Missouri, however, is the increasing proportion of tuberculosis cases in the elderly.

In 1984, 169 cases were reported in the group aged 65 and older for a case rate of 24.6 cases per 100,000 population. The rate in the elderly is nearly 3 1/2 times that of the overall state incidence rate of 7.1. In addition, this group represents the largest reservoir of tuberculosis infection, which means that additional cases of disease will continue to develop in the years ahead. Tuberculosis detection and control should have high priority among institutions and agencies dealing with the elderly in Missouri.

Recent efforts have been undertaken to strengthen the control of tuberculosis in the over-65 population. In the Tuberculosis Control Manual, published in August 1985, specific recommendations were issued regarding screening for tuberculosis in nursing homes in this state.

The major incentive to conduct screening in nursing homes is the desirability of detecting and treating disease in individual patients. In addition, the possibility of transmission to personnel and other patients should be considered. The risks of tuberculosis are different for employees and residents and as a result screening and control measures are different.

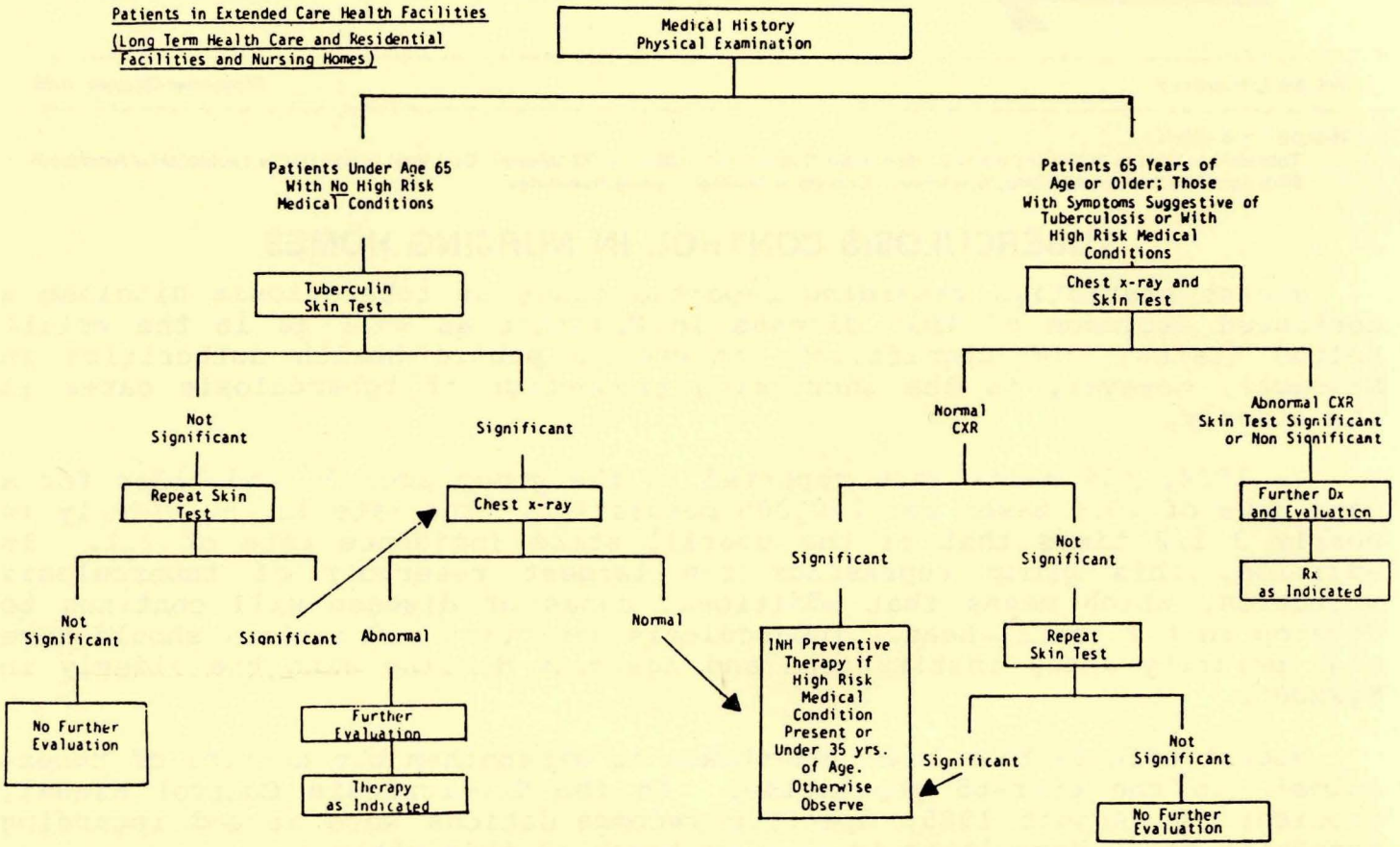
Recommendations for Residents:

It is critical to identify individuals who are infected at the time of admission because it is from this group that reoccurence of old infection will occur. These individuals can be identified through the incorporation of tuberculosis skin testing as part of the preadmission practice of the facility. Generally, these individuals would fall into two categories:

1. patients under 65 years of age with no high-risk medical conditions (silicosis, diabetes mellitus, prolonged therapy with adrenocorticosteroids, etc.);
2. patients 65 years of age or older, or those with high-risk medical conditions or signs and symptoms consistent with tuberculosis, regardless of age.

(Continued on page 2)

Testing of these groups would proceed according to the following schematic diagram:



It is important to note that because conventional tuberculin skin testing may not be a reliable screening method in older and/or chronically ill persons and because these individuals may be at high risk of having tuberculosis, the results of a recent chest x-ray (taken six months prior to admission) should be obtained by the facility. **A CHEST X-RAY IS NEEDED ON ADMISSION ONLY IF NO RECENT FILM IS AVAILABLE.**

A notation should be made on the front of the chart of any reactor who is not treated; place it in the same location as other information such as allergies to medication, etc. in order to heighten awareness of the possibility of tuberculosis if pulmonary symptoms should develop.

Annual chest x-rays are not recommended for these individuals. If a reactor develops symptoms suggestive of tuberculosis, the patient should be examined by x-ray and sputum specimens submitted for smear and culture of tuberculosis.

(Continued on page 3)

Recommendations for Employees:

The annual testing of employees in a nursing home is a good indicator of the extent of transmission within that facility. Until sufficient data are generated to evaluate the yield within a specific group and the extent of transmission, the following occupationally-exposed persons should be tested annually: all employees, attending physicians and dentists, volunteers, nursing and allied health personnel, students, instructors and other individuals in regular attendance within extended health care facilities. Every facility should have an employee tuberculosis surveillance program that is structured as closely as possible to the following:

1. Initial Examination. Provide a tuberculin skin test (Mantoux, 5 TU (tuberculin unit) PPD (protein purified derivative) to all employees at the time of hiring, unless a previously significant reaction can be documented. If the first test results in 0-9 mm of induration, a second test should be given at least one week and no more than three weeks after the first test. The results of the second test should be used as the baseline in determining treatment and follow-up of these employees. A history of BCG (Bacille Calmette et Guerin) does not preclude an initial screening test, and a reaction of 10 mm or more should be managed as a tuberculosis infection. A chest x-ray examination should be provided for employees who have a significant reaction to the skin test or who have symptoms compatible with pulmonary tuberculosis in order to determine the presence of current disease.

2. Repeat Tuberculin Skin Tests. It is generally recommended that employees be skin tested on an annual basis as a means of surveillance within a facility and until sufficient data becomes available to justify its discontinuance. Preventive therapy is recommended for all infected employees, unless specifically contraindicated, to prevent them from developing disease and infecting others. Infected employees who are without disease and who do not complete a course of preventive therapy will need an individualized plan of surveillance. Those who are at high risk of developing disease, i.e. converters, should be assigned where they cannot expose small children, immune-compromised patients, and others for whom the consequences of infection may be especially serious.

3. Repeat Chest X-Ray. After the initial evaluation of persons with significant tuberculin reactions, routine repeated chest roentgenograms are not recommended. They are not a substitute for preventive therapy. Employees who have completed an adequate course of treatment or preventive treatment should be exempt from further screening unless they become symptomatic.

4. Reactors with Symptoms of Tuberculosis. All persons with significant reactions to the tuberculin skin test should be instructed to seek medical attention if they have persistent symptoms of tuberculosis.

(Continued on page 4)

5. Contact Investigations. When there is an exposure to a suspected or recently diagnosed case of tuberculosis, a contact investigation should be conducted. Each person exposed who previously had a negative reaction to the skin test should receive a tuberculin test. Those who are still negative should be retested three months after exposure. Preventive therapy should be given to high-risk contacts with negative skin tests since they may be infected even though their skin tests have not yet converted.

   Chest x-rays should be provided for employees who convert their skin test. Treatment for infection or disease should be provided according to the findings of the x-ray.

6. Evaluation. The data generated from this testing should be analyzed periodically to determine and revise policies. The best index of the effectiveness of the program will be the absence of new infections in employees.

HEAT INJURY SUMMARY FOR 1985

The months of June, July and August were unusually cool and no cases of heat-related illness were reported. The heat index reached the critical level of 105° for 3 days (July 12-14) in Cape Girardeau, 3 days (July 13-14 and August 12) in St. Louis, and 1 day (August 9) in Kansas City. There was no time when the heat index exceeded 105° in all areas of the state simultaneously and only one occasion when during a sequence of three successive days the index exceeded 105°.

Tabulation of death certificates for recent months is still incomplete but a provisional count of heat-related deaths for this three-month period showed no heat-related deaths in 1985 compared to three deaths in a similar period of 1984.

The District Health Unit No. 4 began an intensive morbidity surveillance system on September 1, 1985. This system reported 13 heat-related illnesses in September; five in Ozarks County, seven in St. Francois County and one in Ripley County. This surveillance system should be very useful in monitoring heat-related illnesses in the southeastern area of the state during June, July and August of 1986.

AIDS UPDATE

As of October 22, 1985, the Missouri Department of Health has confirmed 73 cases of Acquired Immune Deficiency Syndrome (AIDS) since the first case was reported in 1982. From this total, 40 deaths have occurred. In addition to the cases reported, 18 suspected cases were pending diagnosis on October 22, 1985.

A summary of illness and patient characteristics and risk factors for all cases reported in the state from 1982 to date:

Illness Characteristics

1 - Both KS* and PCP* (Without Other OI*)
4 - Both KS and PCP (With Other OI)
7 - KS Alone
21 - PCP Alone
4 - KS Without PCP (but with Other OI)
25 - PCP Without KS (but with Other OI)
11 - OI Without KS or PCP

Risk Factors**

8 - Cases with IV Drug Abuse
6 - Cases with Underlying Hemophilia
58 - Cases with Gay Exposure
2 - Case Received Blood Transfusion
2 - Cases with Unknown or No Apparent Risk Factors

Patient Characteristics

61 - White (1 of Hispanic origin; 1 of probable Hispanic origin)
12 - Black
70 - Male
3 - Female Average Age = 37.2

*KS--Kaposi's sarcoma
*PCP--Pneumocystis carinii pneumonia
*OI--Opportunistic Infection

**5 cases with double risk factor

The Missouri Department of Health is currently sponsoring the operation of 11 screening sites for HTLV-III virus antibody testing through county and city health departments.* The sites, which began testing on June 3, 1985, provide alternate locations where high-risk individuals may be tested to encourage them not to offer to donate blood simply to be tested.

As of October 18, 1985, 668 individuals had been tested and 146 were positive. The screening period for HTLV-III virus antibody testing has been extended from the scheduled ending date October 22, 1985 through April 30, 1986.

The Missouri Department of Health together with the Missouri Department of Elementary and Secondary Education distributed the Centers for Disease Control guidelines for "Education and Foster Care of Children Infected with Human T-Lymphotropic Virus Type III/Lymphadenopathy-Associated Virus" to all public, private and state schools in Missouri on September 20.

*The Kansas City site has been discontinued and the St. Louis screening site has been opened and is functioning under a contractual arrangement between the Department of Health and St. Louis City Health Division. The address of this screening site is 4158 Lindell Blvd, phone 314/652-6004.

(The following is reprinted from the *Morbidity Mortality Weekly Report (MMWR)*, September 13, 1985, Vol. 34, No. 36.)

Oral Viral Lesion (Hairy Leukoplakia) Associated With Acquired Immunodeficiency Syndrome

From October 1981 to June 1985, 13 (11%) of 123 patients with hairy leukoplakia (HL) seen in San Francisco, California, were additionally diagnosed as having acquired immunodeficiency syndrome (AIDS). Eighty (73%) of the 110 patients who did not have AIDS at the time of HL diagnosis were followed (1). Twenty of these developed AIDS within 1-33 months (mean 7.5 months) of HL diagnosis. Seventy-nine serum specimens from the 123 patients with HL were tested for antibody to human T-lymphotropic virus type III/lymphadenopathy-associated virus (HTLV-III/LAV) by indirect immunofluorescence (2). Of these, 78 (99%) were positive. The one negative result was also negative by Western blot test. All cases met the CDC case definition for AIDS.

Oral viral "hairy" leukoplakia of the tongue appears as raised white areas of thickening on the tongue, usually on the lateral border. The lesions may not respond to traditional antifungal therapy and appear to have unusual virologic features. Candida has been reported on the surface of the HL lesions. A number of viruses, including papilloma, herpes, and Epstein-Barr, have been identified by electron microscopy in biopsies obtained from the HL lesions. HL was first identified in San Francisco in 1981. The lesion has also been reported in patients examined in Los Angeles, California; Baltimore, Maryland; Ann Arbor, Michigan; Paris, France; Copenhagen, Denmark; and London, England.

(Reported by D. Greenspan, BDS, J. Greenspan, BDS, University of California, San Francisco, School of Dentistry; H. Goldman, DDS, New York University Dental Center, New York City; Dental Disease Prevention Activity, Center for Prevention Svcs, CDC.

Editorial Note: HL may be of diagnostic value as an early indicator of HTLV-III/LAV infections, especially when observed in combination with other clinical findings. Approximately 95% of patients with AIDS and AIDs--related complex are reported to have cervical lymphadenopathy and other head and neck manifestations of disease, which may be detected by dentists or others undertaking oral or facial examination (3).

Health-care providers, including dental personnel, are in a unique position to identify clinical oral symptoms and their potential association with AIDS. Kaposi's sarcoma (KS), candidiasis, recurrent herpetic infections, and papillomas are oral manifestations that have been associated with AIDS. Unresolved candidiasis may be one of the earliest signs of AIDS in persons in groups at risk of acquiring AIDS. Oral KS is virtually pathognomonic of AIDS in males aged 25-44 years. Squamous cell carcinomas, non-Hodgkins lymphomas, and malignant melanomas have also been reported to occur in the oral cavity in association with AIDS.

While careful histories and physical examinations alone will not identify persons with AIDS or related symptoms, oral findings, including this newly reported oral lesion, are important diagnostic tools for health--care providers in early identification and treatment of AIDS.

CHANGES IN SEROLOGIC TESTING PROCEDURES

Over the past year, the Missouri Health Laboratory (MHL) has implemented several changes in its serologic methods for viral and chlamydial diseases. These changes have been motivated by the development and availability of test systems that are gradually replacing the traditional complement fixation, hemagglutination and hemagglutination inhibition tests.

The new test systems used at the MHL are the enzyme immunoassay (EIA)--also known as enzyme-linked immunosorbent assay (ELISA)--and fluorescent immunoassay (FIA). Both types of assays are "labeled reagent" tests and work on essentially the same principle. An antigen-antibody complex is tagged by a conjugate consisting of an antibody to the initial antigen-antibody complex and a chemical label. The difference between EIA and FIA is the label. EIA uses an enzyme label, and substrate must be added to the test well or tube to complete the test. In FIA, the label is a fluorophore, a compound that absorbs short wavelength light and emits light of a longer wavelength.

These tests quantitatively measure the antibody in a serum sample. In EIA, the enzyme-substrate reaction produces a color change that can be read spectrophotometrically. The greater the color change, the more antibody present. For FIA, the greater the intensity of emitted light, the more antibody present. Fluorescence is measured quantitatively by a fluorometer.

There are several advantages of EIA and FIA over traditional tests. EIA and FIA are less complicated, and are less labor intensive. Quality control is easier to maintain, and the reagents are standardized more efficiently. Since reactions are read by instruments, there is less observer bias, and the test principle ensures a more precise quantitative result.

Traditionally, the amount of antibody was reported in terms of titer, or the higest serum dilution that produced a positive reaction. However, EIA and FIA are seldom serially diluted, and the reactivity in a sample is directly proportional to the amount of antibody that is present. Titers, then, are not appropriate for reporting results of these tests. But, reporting numerical data such as optical density or standard units of fluorescence cannot be interpreted without the values of standards, controls and the calibration curves that are required for each testing run. Thus, reports for EIA and FIA summarize the numerical data in words.

Presently the MHL uses EIA and FIA for the following serologic tests:

EIA	FIA
1) Hepatitis B	1) Rubella
2) Herpes	
3) CMV	
4) Chlamydia	
5) Rubeola	
6) PPLO	
7) HTLV-III antibody	

(Continued on back)

Gradually, the MHL intends to replace most complement fixation and hemagglutination testing with EIA or FIA as soon as reagents become available, and the procedures prove themselves to be reliable. The MHL is tentatively planning to use FIA for herpes, CMV and toxoplasmosis within the year.

The staff at the MHL believe that these changes continue our tradition of providing to the public the best, most relevant and timely reference services that are available. Should you have questions, please contact:

The Serology Unit or the Virology Unit
Missouri State Health Laboratory
P.O. Box 570
Jefferson City, MO 65102-0570
Phone: 314/ 751-3334

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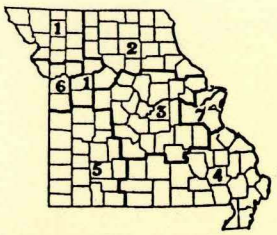


MISSOURI DEPARTMENT OF HEALTH – Epidemiology Services – Communicable Disease Control

BIMONTHLY MORBIDITY REPORT

Reporting Period* July and August , 1985

	DISTRICTS							Kansas City	St. Louis City	St. Louis County	2 Month State Totals		Cumulative		
	1	2	3	4	5	** 6	** 7				1985	1984	for 1985	for 1984	5 Year Median
Vaccine Preventable Dis.															
Chickenpox	9	2	1	5	0	1	3	2	0	0	23	35	2027	1790	
Diphtheria	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Influenza	0	0	0	0	0	0	0	0	1	0	1	3	61	40	
Measles	0	0	0	0	0	0	0	0	0	0	0	1	2	3	
Mumps	0	0	0	0	0	0	0	0	0	0	0	3	11	9	
Pertussis	1	2	0	2	0	0	0	4	2	0	11	2	24	16	
Polio	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Rubella	0	0	0	0	0	0	0	0	0	0	0	0	7	0	
Tetanus	0	0	0	1	0	0	0	0	0	0	1	4	3	5	
Viral Hepatitis															
A	0	0	1	3	1	1	1	0	1	3	11	25	75	95	
B	3	1	7	6	4	5	2	15	19	4	66	70	253	201	
Non A – Non B	2	0	0	0	1	1	0	0	2	2	8	8	27	30	
Unspecified	1	2	0	0	2	1	0	0	1	0	7	3	14	14	
Meningitis															
Aseptic	2	2	5	4	4	4	1	11	6	8	47	22	72	37	
H. influenza	1	0	6	1	1	2	0	3	4	0	18	15	71	72	
Meningococcal	0	0	1	0	0	0	0	0	2	0	3	7	35	33	
Other	0	0	1	0	1	2	0	0	0	0	4	10	34	37	
Enteric Infections															
Campylobacter	8	0	1	6	16	8	17	14	5	13	88	65	203	147	
Salmonella	7	4	16	19	19	10	8	20	37	13	153	155	385	393	
Shigella	2	0	9	0	0	4	2	16	9	2	44	34	97	136	
Typhoid Fever	0	0	0	0	0	0	0	0	0	0	0	2	2	3	
Parasitic Infections															
Amebiasis	2	0	0	0	0	0	0	0	0	0	2	9	18	24	
Giardiasis	12	1	10	4	7	18	5	10	2	7	76	58	241	183	
Toxoplasmosis	0	0	0	2	0	0	0	1	0	0	3	7	11	16	
Sexually Transmitted Dis.															
AIDS	0	0	0	0	3	0	1	2	2	0	8	2	28	16	
Gonorrhea	72	19	112	118	69	124	36	1188	1483	491	3716	3563	13188	12741	
Genital Herpes	6	0	18	5	2	8	8	59	45	50	201	84	864	310	
Nongonococcal urethritis	9	4	46	4	1	53	20	370	765	254	1528	1680	5848	5374	
Primary & secondary syphilis	1	0	0	10	0	1	1	4	5	0	22	21	76	135	
Tuberculosis															
Extrapulmonary	0	0	0	0	0	0	1	2	2	2	7	8	30	24	
Pulmonary	0	1	8	6	11	4	1	6	5	6	48	63	157	199	
Zoonotic															
Animal Bites	1	9	9	40	27	44	28	1	2	0	161	85	411	252	
Psittacosis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Rabies (Animal)	2	1	2	1	2	0	3	0	2	1	14	10	35	46	
Rocky Mtn. Spotted Fever	0	1	0	1	1	0	0	0	0	0	3	9	5	10	
Tularemia	0	1	3	0	1	0	0	0	0	0	5	24	21	33	

Low Frequency Diseases

Anthrax
Botulism
Brucellosis – 2
Chancroid
Cholera – 1
Cryptosporidiosis
Encephalitis (infectious)
Encephalitis (viral/arbo-viral)
Granuloma Inguinale
Kawasaki Disease – 1
Legionnellosis – 1
Leptospirosis – 1
Lymphogranuloma Venereum
Malaria – 2
Plague
Rabies (human)
Reye's Syndrome
Toxic-Shock Syndrome
Trichinosis

Outbreaks

Foodborne/waterborne – 6
Histoplasmosis
Nosocomial – 2
Pediculosis
Scabies – 2
Other – 1

*Reporting Period Beginning July 1, __ , Ending Aug 31, 1985 .

**Totals do not include KC, SLC, or SLCo.

Due to data editing, totals may change.

Missouri EPIDEMIOLOGIST

Volume 7, Number 10 November-December 1985

INSIDE THIS ISSUE:
Hypothermia Mortality in Missouri 1979-85; Lung Cancer Mortality Studies in Southwestern Missouri; Chlamydia Reportability; Tuberculosis Transmitted in a Child Care Center; Hazardous Waste Site Exposure Assessments.

HYPOTHERMIA MORTALITY IN MISSOURI 1979-85

In the past six winters, 105 Missourians have died of conditions related to excessive cold. The most severe winters were 1983-84 when 31 deaths were reported, 1984-85 when 25 were reported and 1981-82 when 21 were reported (see Figure 1). In each of the other years, eight or ten deaths were reported. Of the 105 total deaths, 56 percent occurred in persons over age 65 and 44 percent occurred in those at younger ages (see Table I). The rate of mortality increased sharply at older ages as seen in Figure 2. This emphasizes the need to be very supportive of persons at highest risk and especially so with increasing age.

The Department of Health and the Division of Aging of the Department of Social Services will again be providing district and local public health agencies with guidance on hypothermia prevention and will issue news releases to remind the public of this preventable condition.

TABLE I

HYPOTHERMIA DEATHS & RATES PER 1,000,000 POPULATION BY AGE GROUP: FY 1980-1985

Age Groups	Frequency	Rate
0- 4	1	0.5
5-14	2	0.5
15-24	3	0.6
25-34	4	0.8
35-44	6	1.7
45-54	12	4.2
55-64	17	5.9
65-74	19	8.2
75-84	24	18.4
85+	14	36.4
Unknown	3	

Figure 1. Hypothermia Deaths in Missouri: Fiscal Years 1980-1985

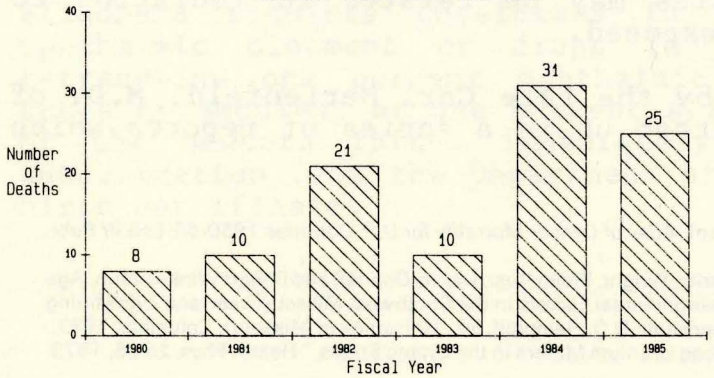
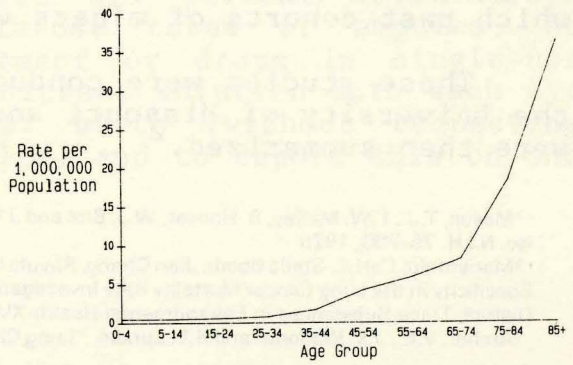


Figure 2. Hypothermia Death Rates by Age Group: Fiscal Years 1980-1985



LUNG CANCER MORTALITY STUDIES IN SOUTHWESTERN MISSOURI

In 1975, Mason, et al[1] drew attention to high death rates in southwestern Missouri from lung cancer for the period 1950 through 1969. Marienfeld, et al[2] verified that rates were higher for the period 1960 through 1979, but found that the excess was not equally shared by the same age and sex groups in Jasper, Newton and Lawrence counties. Cigarette smoking differences were not adequate to explain these excess rates in males but may be a partial explanation for the increased rate of lung cancer among women in Jasper County. Analysis of age specific percentage of miners among men dying of lung cancer in various age groups in Jasper, Newton and Lawrence counties revealed a pattern of higher percentages at older ages in Lawrence County where mining stopped near the turn of the century compared to Newton County where mining stopped about 1910 and Jasper County where mining continued until the middle of the 20th century. Further analysis of the birth cohorts confirmed that the highest rates were in Jasper County males in the birth cohorts from 1890 to 1915, Newton County males in the 1895 birth cohort, and Lawrence County males in the 1865 to 1900 birth cohorts.

Radon daughters were measured at various environmental locations in Jasper County three times during 1982 and 1983 by placement of a total of 64 Terradex integrated track etch detectors for alpha radiation. Thirty-two detectors were recovered after three months. Of those placed in indoor locations, none exceeded the EPA limit of four picocuries per liter, although two relatively high readings of 3.22 and 3.55 were obtained in one public building and one private home. Of those placed in outdoor locations, 11 revealed values in excess of the EPA standard of one picocurie per liter. These ranged from 1.59 to 505.93 and all high values were in or near exits of abandoned mine shafts.

The current EPA standard for occupational exposure is four "working level months per year," which would be reached in one year of work exposure at 34 picocuries per liter. Archer, et al[3] found a threshold value of 120 working level months required before cancer excess was found in uranium workers. This threshold would have been exceeded in approximately two years by a miner exposed to the 505.93 value found in one mine shaft.

These data suggest that the excess of lung cancer deaths in Jasper, Newton and Lawrence counties may be related to radiation to which past cohorts of miners were exposed.

These studies were conducted by the late Carl Marienfeld, M.D. of the University of Missouri and written up in a series of reports which were then summarized.[2]

[1]Mason, T.J., F.W. McKay, R. Hoover, W.J. Blot and J.F. Fraumeni. *Atlas of Cancer Mortality for U.S. Counties 1950-69,* DHEW Publ. No. N.I.H. 75-780, 1975.

[2]Marienfeld, Carl J., Stella Booth, Jian Chang, Ravula Reddy, Harley Wright, Philip Rust, Denny Donnell and Robert Winkelmann. Age Specificity in the Lung Cancer Mortality Rate Investigations of Environmental Factors in the Southwest Missouri Lead and Zinc Mining District, Trace Substances in Environmental Health-XVII, A Symposium. D.D. Hemphill, Ed., University of Missouri, Columbia, 1983.

[3]Archer, V.E., J.K. Wagoner and R.E. Lundin. "Lung Cancer Among Uranium Miners in the United States," Health Phys. 25:35, 1973.

CHLAMYDIA REPORTABILITY

Infections caused by Chlamydia trachomatis are now recognized as the most prevalent and among the most damaging of all sexually transmitted diseases being diagnosed in the United States today. It is estimated that 3 to 4 million Americans suffer from chlamydia infections each year. Chlamydia has an estimated incidence of 2.5 times greater than gonorrhea and causes approximately 50 percent of the reported cases of nongonococcal urethritis and 50 percent of the approximately 500,000 cases of acute epididymitis seen in the U.S. each year. Chlamydia is even more important among women and is demonstrated in 8-12 percent of all pregnant women. It also causes approximately 50 percent of all PID diagnosed in the country each year and contributes significantly to ectopic pregnancy and involuntary sterility.

In the past, a Missouri rule has required that silver nitrate be instilled in the eyes of newborns. The use of erythromycin ophthalmic ointment and other solutions approved by the Department of Health has required approval by the Department prior to being instilled into the eyes of newborns. The Department is amending the rule to encourage physicians to utilize tetracycline or erythromycin in the eyes of newborns. The rationale is that these agents are highly effective against chlamydia ophthalmia and will also prevent most gonococcal ophthalmia. Silver nitrate remains the drug of choice only when highly resistant strains of gonococcus are suspected by the attending physician to be present in the birth canal.

Another rule is being amended by the Department of Health in an attempt to determine the true incidence of Chlamydia trachomatis in Missouri.

The proposed amendments to the two Department of Health rules have been reviewed by the State Board of Health and were published in the November 18 issue of the Missouri Register. It is expected that the amendments will be effective January 26, 1986.

19 CSR 10-101.020 (formerly 13 CSR 50-101.020) **Reporting Communicable Diseases** adds Chlamydia trachomatis infections to the list of Category I diseases that must be reported by rapid communication to the Department of Health or to the local health authority within 24 hours of suspected diagnosis, followed by a written report within seven days.

19 CSR 10-107.010 (formerly 13 CSR 50-107.010) **Prevention of Blindness** requires physicians to instill 0.5 percent erythromycin ophthalmic ointment or drops in single-use tubes or ampules; or tetracyline one percent ophthalmic ointment or drops in single-use tubes or ampules; or one percent silver nitrate solution into each eye of the newborn infant immediately after birth (without requesting authorization from the Department of Health) and to report this on the birth certificate.

TUBERCULOSIS TRANSMITTED IN A CHILD CARE CENTER

Tuberculosis is a contagious disease usually transmitted when a person with pulmonary tuberculosis coughs, thereby expelling tiny nuclei of aerosol droplets. These nuclei contain tubercle bacilli which may be inhaled by a susceptible individual. The disease is most commonly transmitted by adults with cavitary pulmonary lesions. Children with uncomplicated tuberculosis are rarely infectious because of three factors: 1) children usually have minimal pulmonary lesions, 2) there is usually a small output of tubercle bacilli, and 3) children usually have little or no cough.

The incidence of tuberculosis in children is important from an epidemiological perspective because it represents recent transmission of M. tuberculosis. Tuberculosis is also significant in children because severe complications, such as miliary or meningeal tuberculosis, are more likely to occur in persons recently infected.

Concern regarding the incidence of tuberculosis is heightened by the continued increase in the number of children attending day care centers where the potential of exposure and transmission may be greater. A recent investigation in a southeast Missouri community gives the indication that tuberculosis was transmitted in a child care center and may indeed have been transmitted by a child.

In early April, 1985, a five year old female with a history of recurrent upper respiratory infection and otitis media over four months was admitted to a local community hospital for a tonsillectomy. A chest x-ray performed prior to surgery was considered abnormal and a Mantoux tuberculin test was read as significant with 15mm of induration. Bronchial washings were obtained and three direct smears were positive for acid-fast bacilli. The culture specimen grew M. tuberculosis. The child had a productive cough throughout the hospital course. The child was started on an antituberculosis regimen of isoniazid and rifampin and has progressed well, with little or no complications from her illness. Epidemiological investigation disclosed that the child was enrolled in a local Head Start project with 106 other children. A total of 58 adults were employed or served as volunteers at this facility over the last six months. In addition, three adults in the child's home and one sibling were identified as contacts.

The contact investigation began with the child's family. All three adults had significant tuberculin reactions but chest x-rays were all normal. The seven year old sibling was negative on tuberculin test. With no source identified in the child's home, the investigation proceeded to the Head Start project. Tuberculin tests were administered to 62 adults and 103 children. Chest x-rays were performed on all reactors and on those individuals with a history of a previous positive tuberculin reaction. A total of five x-rays were performed on the initial tuberculin reactors. No evidence of progressive tuberculous disease was found in any. Follow-up tuberculin tests were conducted six weeks after exposure. (A six-week interval was decided upon because this was the latest date that the center was still in session.) Three month follow-up was also offered to cover the maximum

"incubation" period of tuberculosis infection. In the follow-up testing, 87 children were retested. Two individuals were classified as converters. A total of 43 adults were retested, with one converter identified. Chest x-rays were normal on all converters and isoniazid preventive therapy was instituted.

This number of conversions among employees and children in this facility without evidence of another case of pulmonary tuberculosis, appears to indicate that transmission occurred from the child. A source for this child's infection remains unknown. One possibility exists with a grandfather who died two years prior in an out-of-state nursing home following a period of respiratory illness. No diagnosis of tuberculosis was made in the grandfather's case.

This unusual case reminds us again that tuberculosis transmission, while unlikely, may occur from a child with pulmonary disease. In addition, this case emphasizes the need for a standardized testing policy among Missouri day care centers and Head Start projects. As a means of monitoring tuberculosis transmission in this population, targeted screening for tuberculosis should be conducted according to guidelines established by the Bureau of Tuberculosis Control.

Tuberculosis Screening Guidelines for Missouri Child Care Facilities

Purpose: The annual testing of employees in all child care centers is a good indicator of the extent of transmission within a given facility and also provides baseline epidemiologic information if a case develops at a time subsequent to the date of annual testing.

Policy: All employees, volunteers, instructors and other adults in regular attendance within child care facilities--including nurseries, day care centers, and other resident care facilities for children and youth--should receive an initial evaluation for tuberculosis and repeated on an annual basis until such time as sufficient data are generated to justify the discontinuance of this policy. Every facility should have an employee tuberculosis surveillance program structured as closely as possible to the following:

a) Initial Examination: Provide a tuberculin skin test (Mantoux, 5 TU PPD) to all employees at the time of hiring, unless a previously significant reaction can be documented. If the first test results in 0-9 mm of induration, a second test should be given at least one week and no more than three weeks after the first test. The results of the second test should be used as the baseline in determining treatment and follow-up of these employees. A history of BCG does not preclude an initial screening test, and a reaction of 10 mm or more should be managed as a tuberculosis infection. A chest x-ray examination should be provided for employees who have a significant reaction to the skin test or have symptoms compatible with pulmonary tuberculosis in order to determine the presence of current disease.

b) Repeat Tuberculin Skin Tests: It is recommended that employees be skin tested on an annual basis as a means of surveillance within an institution and until sufficient data becomes available to justify its discontinuance. Preventive therapy is recommended for all infected employees, unless specifically contraindicated to prevent them from developing disease. Those who do not complete a course of preventive therapy will need an individualized plan of surveillance.

c) Repeat Chest X-Ray: After the initial evaluation of persons with significant tuberculin reactions, routine repeated chest roentgenograms are not recommended. They are not a substitute for preventive therapy. Employees who have completed an adequate course of treatment or preventive treatment should be exempt from further screening unless they become symptomatic.

d) Reactors with Symptoms of Tuberculosis: All persons with significant reactions to the tuberculin skin test should be instructed to seek medical attention if they have persistent symptoms of tuberculosis.

e) Contact Investigations: When there is an exposure to a suspected or recently diagnosed case of tuberculosis, a contact investigation should be conducted. Each person exposed who previously had a negative reaction to the skin test, should receive a tuberculin test. Those who are still negative should be retested three months from exposure.

Preventive therapy should be given to high risk contacts with negative skin tests since they may be infected even though their skin tests have not yet converted.

Chest x-rays should be provided for employees who have significant reactions on the retest. Treatment for infection or disease should be provided according to the finding of the x-ray.

TUBERCULOSIS CONTROL MANUAL AVAILABLE

A limited number of the recently published Tuberculosis Control Manual are now available to physicians, nurses and individuals interested in the control and management of tuberculosis. This document presents the latest policies and procedures of the Bureau of Tuberculosis Control regarding the diagnosis, treatment and follow-up of tuberculosis. The manual is intended as a resource tool for individuals and agencies involved in the control effort.

Every county and district health unit throughout the state has already received a manual. In addition, manuals have been forwarded to infection control practitioners in each hospital of the state.

Physicians throughout the state are encouraged to avail themselves of this resource by contacting the Bureau of Tuberculosis Control at 314/751-8214.

HAZARDOUS WASTE SITE EXPOSURE ASSESSMENTS

The Missouri Department of Health, through its Bureau of Environmental Epidemiology, is involved in ongoing investigations of hazardous waste sites in the state. At present, information from 13 sites has been collected and analyzed. These sites pose some of the more serious potential health problems associated with hazardous waste disposal activities in Missouri. Data collected include 82 water samples from private drinking water wells or springs, and 145 household interviews representing data for 465 citizens. Results of these data have been evaluated to determine the extent of exposure due to these hazardous waste sites, and to assess impact of the sites on human health. Results indicate that while exposures have occurred at some sites none currently appear significant. This information is also communicated to other organizations and persons involved in developing remedies for the problems caused by each site.

Two sites are known to have caused contamination of local public water supplies: the Lee Chemical site near Liberty, and the Solid State Circuits site in Republic. The wells contaminated by these sites are not being used and are undergoing decontamination procedures.

Two other sites have contaminated private drinking water supplies: the Browning-Ferris Industries site near Missouri City, and the North U-Drive site near Springfield. Owners of the wells contaminated by these sites have been informed of the results and are using other sources for their water supplies.

The wells sampled at the nine other sites in Missouri did not have any detectable contamination. These sites are: Bob's Home Service near Wright City; Branson Quarry near Branson; Bliss-Ellisville in Ellisville; Hardt Road near Pond; Murray Landfill near Springfield; Pigeon Hill near St. Joseph; Westlake Landfill near St. Louis; and the Wheeling Disposal site near Amazonia.

No adverse health effects related to chemicals disposed of at any of the 13 sites have been noted. However, because of the potential for future migration of chemicals, water sampling and questionnaire administration will be repeated periodically at all sites.

The Missouri Department of Health will perform similar investigations around the more than 50 other hazardous waste sites in the State and will periodically reassess each site to detect possible exposure and potential health effects.

ERRATA: On page 2 of the September/October 1985 issue (Tuberculosis in Nursing Homes), the second paragraph should read: "It is important to note that because conventional tuberculin skin testing may not be a reliable screening method in older and/or chronically ill persons and because these individuals may be at high risk of having tuberculosis, the results of a recent chest x-ray (not greater than six months prior to admission) should be obtained by the facility. A chest x-ray is needed only if no recent film is available."

Dr. Robert G. Harmon Begins Duties As Director of Missouri Department of Health

Robert G. Harmon, M.D. began his duties January 2, 1986 as the first director of the new Missouri Department of Health (MDOH). He moved to Jefferson City from Phoenix, Arizona where he has been director of public health and health officer for Maricopa County the last three years.

Harmon received his M.D. degree from the Washington University School of Medicine in St. Louis in 1970 and a master of public health degree from Johns Hopkins University in 1977. He is board certified in preventive medicine and completed a residency in internal medicine. He is a fellow and board of regents member of the American College of Preventive Medicine.

Dr. Harmon has consulted in the fields of primary care training and community medicine for Project HOPE in Jamaica; the U.S. Agency for International Development in Ghana, Liberia and Cameroon; and the Pan American Health Organization in the Caribbean. Dr. Harmon and his wife, Carol, have two children, Rex and Susan.

INFLUENZA BULLETIN . . .

Influenza type B virus was isolated from a 20-year-old Springfield woman with onset of illness December 24, 1985. This is the first influenza virus strain to be isolated in Missouri this influenza season.

Missouri EPIDEMIOLOGIST

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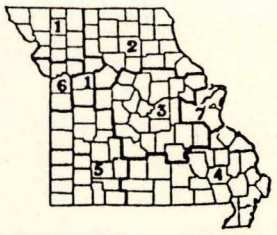


MISSOURI DEPARTMENT OF HEALTH – Epidemiology Services – Communicable Disease Control

BIMONTHLY MORBIDITY REPORT

Reporting Period* September and October , 1985

	DISTRICTS							Kansas City	St. Louis City	St. Louis County	2 Month State Totals		Cumulative		
	1	2	3	4	5	** 6	** 7				1985	1984	for 1985	for 1984	5 Year Median
Vaccine Preventable Dis.															
Chickenpox	4	4	4	0	0	5	0	0	0	0	17	40	2060	1830	
Diphtheria	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Influenza	0	0	0	0	0	0	0	0	0	0	0	0	61	40	
Measles	0	0	0	0	0	0	0	0	0	1	1	1	3	4	
Mumps	0	1	0	0	0	0	0	0	0	1	2	1	14	10	
Pertussis	1	0	1	0	1	0	0	2	0	0	5	4	31	20	
Polio	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Rubella	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Tetanus	0	0	0	0	0	0	0	0	0	0	0	0	3	5	
Viral Hepatitis															
A	0	1	1	5	2	0	0	2	1	1	13	40	90	135	
B	3	7	9	1	2	4	4	15	5	7	57	55	329	256	
Non A – Non B	0	0	0	0	6	0	1	0	0	2	9	11	38	41	
Unspecified	1	1	0	0	2	0	0	0	0	1	5	3	21	17	
Meningitis															
Aseptic	5	2	6	13	8	5	5	10	10	7	71	35	149	72	
H. influenza	1	2	1	0	5	1	3	1	2	6	22	13	97	85	
Meningococcal	0	0	0	0	2	1	1	1	00	0	5	8	40	41	
Other	0	3	0	2	1	0	0	1	0	1	8	6	43	43	
Enteric Infections															
Campylobacter	5	0	2	2	9	4	11	1	1	24	59	53	275	200	
Salmonella	5	2	17	17	18	9	10	19	40	8	145	137	573	530	
Shigella	0	0	2	0	1	2	0	16	9	3	33	53	134	189	
Typhoid Fever	0	0	0	0	1	0	0	0	0	1	2	2	3	5	
Parasitic Infections															
Amebiasis	3	0	1	1	1	0	0	0	0	0	6	7	26	31	
Giardiasis	17	9	26	15	3	17	5	19	3	8	122	151	364	334	
Toxoplasmosis	0	0	1	1	2	0	0	0	0	0	4	1	15	17	
Sexually Transmitted Dis.															
AIDS	0	0	0	0	2	0	1	1	5	4	13	8	40	25	
Gonorrhea	79	20	137	119	61	123	38	1070	1320	420	3387	3623	16575	16364	
Genital Herpes	8	1	11	5	6	2	6	72	48	58	217	153	1081	463	
Nongonococcal urethritis	16	3	36	7	27	36	13	263	499	195	1095	1517	6943	6891	
Primary & secondary syphilis	1	0	0	10	0	0	0	9	2	5	27	21	103	156	
Tuberculosis															
Extrapulmonary	0	0	0	1	3	1	0	4	2	0	11	6	43	30	
Pulmonary	2	4	4	7	8	0	0	7	8	0	40	43	208	242	
Zoonotic															
Animal Bites	0	8	3	19	12	21	23	0	0	1	87	49	348	301	
Psittacosis	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
Rabies (Animal)	5	0	1	4	2	0	1	0	0	1	14	14	50	61	
Rocky Mtn. Spotted Fever	0	1	1	0	1	0	0	1	1	0	5	3	9	13	
Tularemia	0	0	3	2	2	1	0	0	1	0	9	7	34	40	

Low Frequency Diseases

Anthrax
Botulism
Brucellosis – 2
Chancroid
Cholera
Cryptosporidiosis
Encephalitis (infectious)
Encephalitis (viral/arbo-viral)
Granuloma Inguinale
Kawasaki Disease
Legionnellosis – 4
Leptospirosis – 1
Lymphogranuloma Venereum
Malaria – 1
Plague
Rabies (human)
Reye's Syndrome
Toxic-Shock Syndrome – 1
Trichinosis

Outbreaks

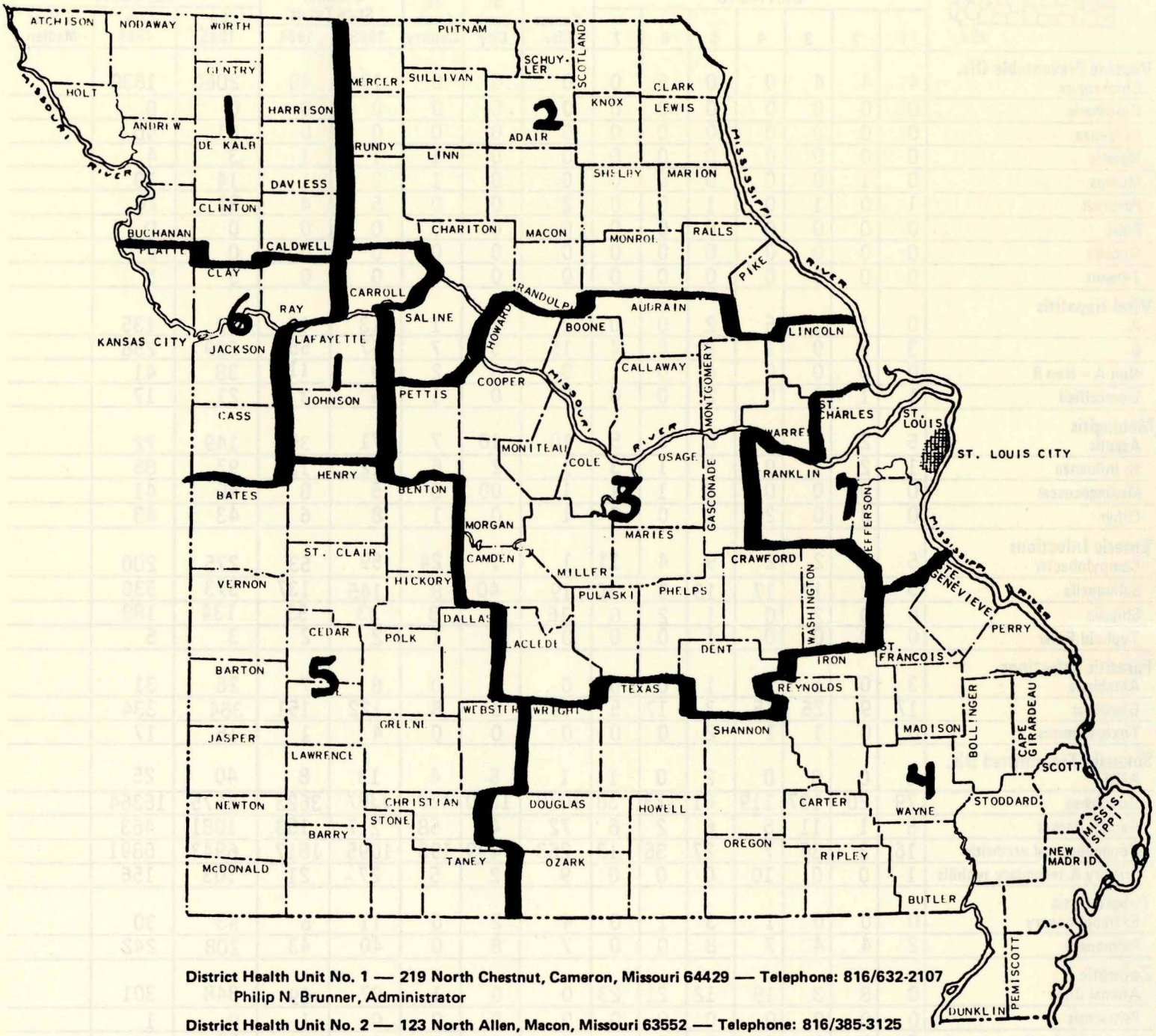
Foodborne/waterborne – 3
Histoplasmosis
Nosocomial – 1
Pediculosis
Scabies – 1
Other – 1

*Reporting Period Beginning Sept 1 , Ending Nov. 1 .

**Totals do not include KC, SLC, or SLCo.

Due to data editing, totals may change.

MISSOURI DEPARTMENT OF HEALTH



District Health Unit No. 1 — 219 North Chestnut, Cameron, Missouri 64429 — Telephone: 816/632-2107
Philip N. Brunner, Administrator

District Health Unit No. 2 — 123 North Allen, Macon, Missouri 63552 — Telephone: 816/385-3125
Kenneth G. Freeman, Administrator — Wayne V. Lehr, D.O., Medical Consultant

District Health Unit No. 3 — 907 Missouri Boulevard, Jefferson City, Missouri 65101 — Telephone: 314/751-4216
LeRoy E. VanLoo, Administrator

District Health Unit No. 4 — 1812 South Broadway, Poplar Bluff, Missouri 63901 — Telephone: 314/785-9634
A. Z. Tomerlin, Administrator

District Health Unit No. 5 — 1150 East Latoka, P.O. Box 777, Springfield, Missouri 65801 — Telephone: 417/883-1555
Richard McDowell, Administrator — O. A. Griffin, M.D., Medical Consultant

District Health Unit No. 6 — 5105 Blue Ridge Blvd., Suite 111, Raytown, Missouri 64133 — Telephone: 816/353-9902
Philip N. Brunner, Administrator

District Health Unit No. 7 — 1511 Locust Street, St. Louis, Missouri 63103 — Telephone: 314/621-1551
Chester A. Hines, Administrator